What is claimed is:

1. In a process of buttwelding non-stainless steel metal workpieces having bevel joint preparations using GTAW welder using filler wire including:

preparing the beveled workpieces with bevel joint areas having minimal land thicknesses at their root extremities;

placing the prepared workpiece joint sections together with an open gap defining an open root area between their adjacent root extremities, the gap having a minimum dimension that avoids harmful compression stress between the workpieces due to weld shrinkage and a maximum dimension that avoids filler wire penetration of the gap;

fusion welding the open root area of the adjacent workpieces with a root pass weld using a GTAW welder supplied with filler wire and a shield gas including 1 to 10% hydrogen and the balance inert gas; and then

overlaying the root pass weld with at least one additional filler weld pass using a GTAW welder supplied with filler wire and hydrogen-free shield gas, the improvement wherein

said open root pass is carried out in the substantial absence of moisture in the area undergoing welding using a shield gas delivery elastomer hose system preventing permeation of moisture into the shield gas via the delivery elastomer hose system.

2. The improved buttwelding process according to claim 1, including using as part of the shield gas delivery system a delivery elastomer hose that has a moisture permeability coefficient of 0 to 275.

3. The improved buttwelding process according to claim 2, including using an elastomer delivery hose having a moisture permeability coefficient below 100.

4. The improved buttwelding process according to claim 3, including selecting as a delivery hose a hose made of copolymer elastomer made of halogenated monomers.

5. The improved buttwelding process according to claim 1, including using as a welding electrode a composition comprising, by weight:

Tungsten	98.5%
La_2O_3	1.3 +/-0.1%
Y_2O_3	0.1%
ZrO_2	0.1%

6. The improved buttwelding process according to claim 1, including using as a welding electrode a composition comprising 98.5% tungsten and 1.5% lanthanum oxide.

7. In a process of buttwelding non-stainless steel workpieces having bevel joint preparations using a GTAW welder using filler wire including:

preparing the beveled workpieces with bevel joint areas having minimal land thicknesses at their root extremities;

placing the prepared workpiece joint sections together with an open gap between their adjacent root extremities, the gap having a minimum dimension that avoids harmful compression stress between the workpieces due to weld shrinkage and a maximum dimension that avoids filler wire penetration of the gap;

fusion welding the open root area of the adjacent workpieces with a root pass weld using a GTAW welder supplied with filler wire and a shield gas including 1 to 10% hydrogen and the balance inert gas; and then

overlaying the root pass weld with at least one additional filler weld pass using a GTAW welder supplied with filler wire and hydrogen-free shield gas, the improvement comprising:

using as a welding electrode a composition comprising by weight:

Tungsten	98.5%
La_2O_3	1.3 +/-0.1%
Y_2O_3	0.1%
ZrO_2	0.1%

8. In a process of buttwelding non-stainless steel metal workpieces having bevel joint preparations using a GTAW welder using filler wire including:

preparing the beveled workpieces with bevel joint areas having minimal land thicknesses at their root extremities;

placing the prepared workpiece joint sections together with an open gap between their adjacent root extremities, the gap having a minimum dimension that avoids harmful compression stress between the workpieces due to weld shrinkage and a maximum dimension that avoids filler wire penetration of the gap;

fusion welding the open root area of the adjacent workpieces with a root pass weld using a GTAW welder supplied with filler wire and a shield gas including 1 to 10% hydrogen and the balance inert gas; and then

overlaying the root pass weld with at least one additional filler weld pass using a GTAW welder supplied with filler wire and hydrogen-free shield gas,

the improvement comprising :

using as a welding electrode a composition comprising 98.5% tungsten and 1.5% lanthanum oxide.

9. The process according to claim 1, wherein the metal workpieces comprise carbon steel.

10. The process according to claim 1, wherein the bevel joint area of each workpiece is beveled at 37.5.degree., the end land thickness of the joint ends are in the range of approximately 0.000 to 0.010 in. (0.000-0.254 mm), the gap dimension is about 0.035 in. (0.889 mm) and the workpieces are medium to thick wall thickness pipes.

11. The process according to claim 1, wherein the inert gas is argon.

12. The process according to claim 1, wherein the shield gas is 95% argon and 5% hydrogen.

13. The process according to claim 1, wherein the workpiece is tubular and wherein the root pass and overlaying welds are carried out using an orbital GTAW welder supplied with said filler wire and shield gas.

14. The process according to claim 1, wherein the second pass weld following the root pass is carried out using argon shield gas.

15. The process according to claim 1, wherein the metal workpieces are tubular conduits and fittings for such conduits.

16. The process according to claim 15, including using an orbital GTAW welder for the welding passes.

17. The process according to claim 1, including using an elastomer shield gas delivery hose substantially preventing infusion of oxygen into the shield gas via the delivery system.

18. The process according to claim 2, including using as a welding electrode a composition comprising, by weight:

Tungsten	98.5%
La_2O_3	1.3 +/-0.1%
Y_2O_3	0.1%
ZrO_2	0.1%